

In the Claims

Please cancel Claims 12, 18, 21, 22, 24, 27, 28, 30, 31, 33-50, 53-56, 59-62, 65-68, 70, 73, 74, 80, 84, 87 and 90-92 without prejudice to their prosecution in this application or in a continuing application.

Please amend Claims 1, 2, 4, 6-8, 13, 14, 19, 20, 23, 25, 26, 29, 32, 51, 57, 63, 69, 71, 75, 76, 83, 85, 86 and 88. Amendments to the claims are indicated in the attached "Marked Up Version of Amendments" (pages vi - x).

1. (Amended) A method of reducing photoaging in a mammal, comprising administering to the epidermis of the mammal a composition comprising an effective amount of at least one oligonucleotide, wherein said oligonucleotide is approximately 2-200 nucleotides in length, and wherein the oligonucleotide comprises a phosphodiester backbone.

2. (Amended) The method of Claim 1, wherein said oligonucleotide comprises a nucleotide sequence consisting of a nucleotide sequence or a portion of a sequence selected from the group consisting of SEQ ID NOs: 1, 2, 3, 4, 5, 6, 8, 9, 10, 11 and 12.

4. (Amended) The method of Claim 1, wherein the oligonucleotide comprises a 5' phosphate.

6. (Amended) The method of Claim 1, wherein the oligonucleotide comprises a physiologically acceptable carrier.

7. (Amended) A method of increasing melanin production in epidermal melanocytes, said method comprising topically administering to said cells an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:5, SEQ ID NO:3, or SEQ ID NO:11.

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8. (Amended) The method of Claim 7, wherein said oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 5, or a portion thereof.
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13. (Amended) The method of Claim 7, wherein the composition comprises a physiologically acceptable carrier.
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14. (Amended) A method of increasing melanin production in epidermal melanocytes, comprising contacting the cells with an effective amount of at least one oligonucleotide having a phosphodiester backbone, wherein the oligonucleotide consists of at least one sequence or portion thereof selected from the group consisting of: pTpT, SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:11 and SEQ ID NO:12.
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19. (Amended) The method of Claim 14, wherein the composition comprises a physiologically acceptable carrier.
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20. (Amended) A method of increasing DNA repair in epithelial cells, comprising applying directly to said cells an effective amount of a composition comprising pTpT.
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23. (Amended) The method of Claim 20, wherein the pTpT is at a concentration of about 1 μ M to about 500 μ M.
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25. (Amended) The method of Claim 20, wherein the composition comprises a physiologically acceptable carrier.
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26. (Amended) A method of inhibiting proliferation of epithelial cells, comprising administering to said cells an effective amount of a composition comprising pTpT.
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29. (Amended) The method of Claim 26, wherein the pTpT is at a concentration of about 1 μ M to about 500 μ M.
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~~32. (Amended) The method of Claim 26, wherein the composition comprises a physiologically acceptable carrier.~~

~~51. (Amended) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO: 5 and wherein said composition is suitable for medicinal or cosmetic use.~~

~~57. (Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO:3 and wherein said composition is suitable for medicinal or cosmetic use.~~

~~63. (Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO: 9 and wherein said composition is suitable for medicinal or cosmetic use.~~

~~69. (Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3 or SEQ ID NO: 4, and wherein at least one of said oligonucleotides comprises a 5' phosphate, and wherein said composition is suitable for medicinal or cosmetic use.~~

~~71. (Amended) A method of increasing p53 activity in epidermal cells, said method comprising topically administering an effective amount of d(pT)₂, or oligonucleotide having a nucleotide sequence consisting of SEQ ID NO:1 or SEQ ID NO:6 to said cells.~~

75. (Amended) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising administering to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO:6 or pTpT.

76. (Amended) The method of Claim 75, wherein pTpT is ultraviolet-irradiated.

83. (Amended) The method of Claim 75, wherein the epithelial cells are carcinoma cells.

85. (Amended) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin cells an effective amount of deoxynucleotides, dinucleotides, or dinucleotide dimers and combinations thereof.


86. (Amended) A method of inhibiting or reducing DNA damage in epidermal cells of a mammal, wherein said DNA damage is caused by UV irradiation, said method comprising topically administering to the cells in the mammal an effective amount of a composition comprising DNA fragments that are approximately 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, dinucleotides, dinucleotide dimers and combinations thereof.

88. (Amended) A method of treating malignant cells of a mammal, comprising administering to said cells an effective amount of DNA fragments that comprise a phosphodiester backbone and are about 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, dinucleotides, dinucleotide dimers and combinations thereof.

Please add new Claims 93-109.

93. (New) A method of increasing melanin production in epidermal cells, said method comprising topically administering to said cells an effective amount of a composition comprising at least one single-stranded oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence homologous to the telomere repeat sequence.
94. (New) A method of increasing DNA repair in skin of a mammal, comprising topically administering to the skin an effective amount of a composition comprising pTpT or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO:1.
95. (New) A method of treating malignant cells of a mammal, comprising topically administering to said cells an effective amount of pTpT.
96. (New) The method of Claim 95, wherein the cells are skin cells.
97. (New) A method of treating malignant skin cells of a mammal, comprising topically administering to said cells an effective amount of deoxynucleotides, dinucleotides, dinucleotide dimers or combinations thereof, wherein said dinucleotides and dinucleotide dimers have phosphodiester backbones.
98. (New) The method of Claim 86, wherein the composition comprises pTpT or a single-stranded DNA fragment having a nucleotide sequence consisting of SEQ ID NO:1 with a 5' phosphate.
99. (New) A method of inhibiting the growth of cells in a mammal, comprising directly administering to the cells of the mammal an effective amount of pTpT.
100. (New) A method of inhibiting proliferation of epithelial cells, comprising directly administering to said cells an effective amount of a composition comprising pTpT.

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101. (New) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin an effective amount of a composition comprising at least one oligonucleotide having a DNA sequence consisting of pTpT or SEQ ID NO:1.
102. (New) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin of the mammal an effective amount of a composition comprising pTpT.
103. (New) The method of Claim 102, wherein said skin cells are selected from the group consisting of: melanocytes, keratinocytes and fibroblasts.
104. (New) A method of inhibiting growth of skin cells in a mammal, comprising administering to skin of the mammal an oligonucleotide having a nucleotide sequence consisting of pTpT, SEQ ID NO:1 or SEQ ID NO:6.
105. (New) The method of Claim 104 wherein the skin cells are keratinocytes.
106. (New) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO:11 and wherein said composition is suitable for medicinal or cosmetic use.
107. (New) The composition of Claim 106, wherein at least one of said oligonucleotides comprises a 5' phosphate.
108. (New) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO:12 and wherein said composition is suitable for medicinal or cosmetic use.